

Rajiv Gandhi University of Health Sciences, Karnataka

IV Year B.Pharm Degree Examination – NOVEMBER 2015

Time: Three Hours

Max. Marks: 70 Marks

INSTRUMENTAL & BIO-MEDICAL ANALYSIS

(Revised Scheme – 3)

Q.P. CODE: 2617

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two)

2 x 10 = 20 Marks

1. Discuss the construction and working of any two detectors used in gas chromatography. Outline the advantages and disadvantages of each with respect to the other. Explain the terms, "retention volume", "retention time" and "resolution".
2. Bring out the similarities and differences in the construction and working of UV – VISIBLE, IR spectrophotometers and spectrofluorometers.
3. What shape of curve do you expect for each of the following conductometric titration? Justify your answer. (a) HCl versus NaOH; (b) sodium acetate versus HCl; (c) Boric acid versus NaOH and (d) acetic acid versus NaOH.

SHORT ESSAYS (Answer any Six)

6 x 5 = 30 Marks

4. Discuss the derivative methods of determination of end - point in potentiometric titrations with suitable example.
5. Explain the principle involved in fluorometry. Deduce a relationship between fluorescence intensity and concentration.
6. What is λ_{max} ? Explain why, it is selected in quantitative UV-Visible spectrophotometry?
7. Distinguish between the terms: absorbance, absorption co-efficient, specific absorption co-efficient and molar absorption co-efficient.
8. Discuss the effects of IR radiation on molecules and how can we make use of this interaction in the study of a molecule.
9. Write a note on the principle and techniques of Zone electrophoresis.
10. Outline the advantages and disadvantages of TLC over paper chromatography.
11. Discuss the elution techniques of development in column chromatography. Outline the advantages over other methods.

SHORT ANSWERS

10 x 2 = 20 Marks

12. What is HPLC? What are its advantages over GC?
13. Outline the principle involved in ion exchange chromatography.
14. What are the different components present in a flame photometer?
15. How do you prepare 100 ml of 5NTU suspension from 40NTU suspension?
16. List out any four pharmaceutical substances that are intrinsically fluorescent.
17. Name any four IR transparent materials that are, used in IR spectroscopy.
18. Explain the term HETP.
19. Which reference and indicator electrodes can be used for the following potentiometric titrations: (a) Acid-Base titrations (b) Red-ox titrations?
20. What is, meant by validation of a method? What is its significance?
21. What do you mean by molar conductance and equivalent conductance?
